

CLEAN VERSION OF THE AMENDED PARAGRAPHS OF THE SPECIFICATION

The following is a clean version of the amended paragraph at page 1, lines 16-29.

In one aspect, the invention features a thermoplastic composition that includes from about 1 % by weight to 25 % by weight block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, from about 45 % by weight to about 75 % by weight superabsorbent polymer particles that include polyacrylate and having a median particle diameter of from 20 μ m to 30 μ m, and from about 15 % by weight to about 40 % by weight plasticizing oil. In one embodiment, the thermoplastic composition further includes surfactant. In another embodiment, the thermoplastic composition further includes from about 1 % by weight to about 5 % by weight surfactant. In some embodiments, the thermoplastic composition includes from 60 % by weight to about 75 % by weight the superabsorbent polymer. In one embodiment, the block copolymer is selected from the group consisting of styrene-isoprene-styrene, styrene-ethylene-butylene-styrene, styrene-ethylene-propylene-styrene, styrene-butadiene-styrene and combinations thereof.

The following is a clean version of the amended paragraph at page 5, lines 15-28.

Suitable block copolymers include linear and radial copolymer structures having the formula (A-B)_x or A-B-A, where block A is a polyvinylarene block, block B is a poly(monoalkenyl) block, and x is an integer of at least one. Suitable block A polyvinylarenes include, e.g., polystyrene, polyalpha-methylstyrene, polyvinyltoluene and combinations thereof. Suitable B blocks include, e.g., conjugated diene elastomers including, e.g., polybutadiene and polyisoprene, hydrogenated elastomers, ethylene/butylene (hydrogenated butadiene) and ethylene/propylene (hydrogenated isoprene), and combinations and mixtures thereof. Useful commercially available block copolymers are available under the Kraton D and Kraton G series of trade designations from Shell Chemical Company (Houston, TX) including, e.g., Kraton G-1651, the Europrene Sol T series of trade designations from EniChem Elastomers (Houston, TX), the Vector series of trade designations from Exxon (Dexco) (Houston, TX), Soprene series of trade designations from Enichem Elastomers and Stereon series of trade designations from Firestone Tire & Rubber Co. (Akron, Ohio).

CLEAN VERSION OF THE AMENDED PARAGRAPHS OF THE SPECIFICATION

The following is a clean version of the amended paragraph at page 6, lines 13-28.

Metallocene polyolefins are homogeneous linear and substantially linear ethylene polymers prepared using single-site or metallocene catalysts. Substantially linear ethylene polymers are commercially available from Dow Chemical Company and include polyolefin plastomers available under the AFFINITY trade designation, homogeneous linear ethylene polymers are available from Exxon Chemical Company under the trade designation EXACT. Homogeneous linear and substantially linear ethylene polymers having a relatively low density, ranging from about 0.855 to about 0.885, and a relatively low melt index, for example less than about 50 g/10 min.

The term "interpolymer" is used herein to indicate a copolymer, terpolymer, or higher order polymer having at least one other comonomer polymerized with ethylene. Interpolymers of ethylene are those polymers having at least one comonomer selected from the group consisting of vinyl esters of a saturated carboxylic acid wherein the acid moiety has up to 4 carbon atoms, unsaturated mono-or dicarboxylic acids of 3 to 5 carbon atoms, a salt of the unsaturated acid, esters of the unsaturated acid derived from an alcohol having 1 to 8 carbon atoms, and mixtures thereof. The melt index of the interpolymers of ethylene may range from about 50 g/10 min to about 2000 g/10 min, from about 100 g/10 min to 1500 g/10 min, from about 200 g/10 min to 1200 g/10 min, and from about 400 g/10 min to 1200 g/10 min.

The following is a clean version of the amended paragraph at page 7, line 3-11.

Other thermoplastic polymers include polybutylene, polylactide, e.g., caprolactone polymers, and poly (hydroxy-butyrate/hydroxyvalerate), certain polyvinyl alcohols, biodegradable copolyesters such as Eastman Copolyester 14766 (Eastman Chemical), linear saturated polyesters, examples of which are available under the trade designations DYNAPOL and DYNACOLL from Huls, poly(ethylene oxide) polyether amide and polyester ether block copolymers, examples of which are available under the trade designations PEBAX from Atochem and RITE-FLEX from Hoechst Celanese, and polyamide polymers, examples of which are available under the trade designations UNIREZ (Union Camp), VESTAMELT (Huls) and GRILTEX (EMS-Chemie).

CLEAN VERSION OF THE AMENDED PARAGRAPHS OF THE SPECIFICATION

The following is a clean version of the amended paragraph at page 7, line 27- page 8, line 6.

Useful commercially available superabsorbent particles include, e.g., sodium polyacrylate superabsorbent particles available under the AQUA KEEP series of trade designations including, e.g., particles having a median particle size of from about 20 µm to about 30 µm available under the trade designation AQUA KEEP 10SH-NF, particles having an average particle size of from 200 µm to 300 µm available under the trade designation AQUA KEEP 10SH-P, particles having an average particle size of from 320 µm to 370 µm available under the trade designation AQUA KEEP SA60S, particles having an average particle size of from 350µm to 390 µm available under the trade designations AQUA KEEP SA60SX, SA55SX II and SA 60SL II, and particles having an average particle size of from 250 µm to 350 µm available under the trade designation AQUA KEEP SA60N TYPE II from Sumitomo Seika Chemicals Col, Ltd. (Japan).

The following is a clean version of the amended paragraph at page 8, lines 11-16.

Useful plasticizing oils include, e.g., hydrocarbon oils low in aromatic content, mineral oil (e.g., Purity 35 mineral oil from PetroCanada Lubricants (Calgary, Canada)). Preferred plasticizing oils are paraffinic or naphthenic. One example of a suitable commercially available plasticizing oil is available under the trade designation Calsol 555 from Calumet Refining Co. (Chicago, Illinois). One example of a suitable commercially available solid recrystallizing plasticizer is available under the trade designation Benzoflex 352 form Velsico (Rosemont, Illinois).

**CLEAN VERSION OF THE AMENDED PARAGRAPHS OF THE
SPECIFICATION**

The following is a clean version of the amended paragraph at page 9, lines 3-12.

Examples of suitable tackifying agents include wood rosin, tall oil rosin, tall oil derivatives, gum rosin, rosin ester resins, natural terpenes, synthetic terpenes, and petroleum based tackifying agents including, e.g., aliphatic, aromatic and mixed aliphatic-aromatic petroleum based tackifying resins. Useful hydrocarbon resins include, e.g., alpha-methyl styrene resins, branched and unbranched C₅ resins, C₉ resins and C₁₀ resins, styrenic and hydrogenated modifications thereof, and combinations thereof. One example of a useful commercially available tackifying resin is Zonatac 105 styrenated terpene resin from Arizona Chemicals Inc. (Panama City, Florida). Examples of useful commercially available tackified thermoplastic adhesives include HL-1620-A, HL-2238 AND HL-1500 thermoplastic adhesives available from H.B. Fuller company (Vadnais Heights, Minnesota).

The following is a clean version of the amended paragraph at page 14, lines 14-15.

¹⁰AquaKeep 10SH-NF superabsorbent particles having a median diameter of 20 μm to 30 μm (Sumitomo Seika, Osaka, Japan)

greater than 1 hour, no greater than 25 minutes, no greater than 10 minutes or no greater than 5 minutes.

In another embodiment, the composition exhibits an absorbent capacity of at least 60 g water/g of composition, at least 70 g water/g of composition, at least 90 g water/g of composition at least 100 g water/g of composition or at least 110 g water/g of composition.

In some embodiments, the composition exhibits an absorbent capacity of at least 25 g 0.9 % saline solution/g of composition, at least 30 g 0.9 % saline solution/g of composition or at least 35 g 0.9 % saline solution/g of composition.

In one embodiment, the thermoplastic composition includes block copolymer having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that includes polyacrylate and having a median particle diameter of from 20 μ m to 30 μ m and plasticizing oil, and the composition exhibits a water gel time of no greater than 2 minutes. In some embodiments, the block copolymer is selected from the group consisting of styrene-isoprene-styrene, styrene-ethylene-butylene-styrene, styrene-ethylene-propylene-styrene, styrene-butadiene-styrene and combinations thereof

In another embodiment, the thermoplastic composition includes block copolymer having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that include polyacrylate and having a median particle diameter of from 20 μ m to 30 μ m and plasticizing oil, and the composition exhibits a 0.9 % saline solution gel time of no greater than 1 hour.

In other embodiments, the thermoplastic composition includes block copolymer having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that include polyacrylate and having a median particle diameter of from 20 μ m to 30 μ m and plasticizing oil and the composition exhibits an absorbent capacity of at least 70 g water/g of composition.

In some embodiments, the thermoplastic composition includes block copolymer having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block

comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that includes polyacrylate and having a median particle diameter of from 20 μm to 30 μm and plasticizing oil, and the composition exhibits an absorbent capacity of at least 25 g 0.9 % aqueous saline solution/g of composition.

5 In other embodiments, the thermoplastic adhesive composition that includes from about 1 % by weight to 25 % by weight block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, from about 45 % by weight to about 75 % by weight superabsorbent polymer particles that include polyacrylate and having a
10 median particle diameter of from 20 μm to 30 μm , tackifying agent and from about 15 % by weight to about 40 % by weight plasticizing oil.

In another embodiment, the thermoplastic composition includes block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one spherical
15 superabsorbent particles that include polyacrylate and plasticizing oil, the composition exhibiting a water gel time of no greater than 2 minutes, a viscosity of no greater than 100,000 centipoise at 300°F and a wet tensile strength of at least 15 g/in². In one embodiment, the composition exhibits a 0.9 % saline solution gel time of no greater than 1 hour. In some embodiments, the composition exhibits a 0.9 % saline solution gel time of
20 no greater than 10 minutes. In other embodiments, the composition exhibits a water gel time of no greater than 1.5 minutes, a viscosity of no greater than 30,000 centipoise and a wet tensile strength of at least 40 g/in². In another embodiment, the composition exhibits an absorption capacity of at least 70 g water/g composition.

In some embodiments, the thermoplastic composition includes from about 1 % by
25 weight to 25 % by weight block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, from about 45 % by weight to about 75 % by weight superabsorbent polymer particles that include polyacrylate, and from about 15 % by weight to about 40 % by weight plasticizing oil, the composition exhibiting a water gel
30 time of no greater than 2 minutes, and an absorption capacity of at least 70 g water/g composition and at least 10 g 0.9 % saline solution/g composition.

**CLEAN VERSION OF AMENDED/SUBSTITUTE PAGE 13 OF THE
SPECIFICATION**

Table 1

Example	1	2	3	4	5	6	7	8
Ingredients								
NW-1067 ¹	52	44.5						
HL-1620-A ²			45					
HL-2238 ³				45				
DP-8910 ⁴					15			
Zonatac 105 ⁵					15			
Calsol 5555 oil ⁶					15		27	22.5
HL-1500 ⁷						33		
Kraton G-1651 ⁸							1.5	1.5
Rhodacal DS-10 ⁹			2	2	2	2	1	1
AquaKeep 10SH-NF ¹⁰	48	55.5	53	53	53	65	70	75
Water Gel Time	>25 min	14.5 min	8.25 min	6 min	2.25 min	1.0 min	1.5 min	1.0 min
0.9% Saline Solution Gel Time	> 6 hrs	> 6 hrs	> 5 hrs	3.5 hrs	>20 min	9 min	5 min	10 min
Absorbent Capacity in water (g/g)	2.2	44	60	32	68	75	116	118
Absorbent Capacity in 0.9% Saline Solution (g/g)	2.7	5.2	24.5	9.9	24.7	21	35.5	37
Viscosity (cps) @ 300F	21,000	88,000	85,000	92,000	65,000	24,000	65,000	> 100,000
Wet Tensile Strength (g)	NT	NT	NT	NT	NT	49 g	Soft rubber nature	Soft rubber nature

NT = Not Tested

¹NW-1067 styrene-isoprene-styrene block copolymer-based adhesive composition (H.B. Fuller Company).

²HL-1620-A styrene-isoprene-styrene block copolymer-based adhesive composition including hydrocarbon resin and plasticizer (H.B. Fuller Company).

³HL-2238 styrene-ethylene-butylene-styrene block copolymer-based adhesive composition including hydrocarbon resin and plasticizer (H.B. Fuller Company).

⁴DP-8910 polybutylene (Shell Chemical Company, Houston, Texas)